Computer Graphics and Image Processing

EDITORS
Azriel Rosenfeld
Herbert Freeman
Thomas S. Huang
Andries van Dam

AN INTERNATIONAL JOURNAL

Volume 13, 1980

ACADEMIC PRESS
A Subsidiary of Harcourt Brace Jovanovich, Publishers
New York London Toronto Sydney San Francisco

Copyright © 1980 by Academic Press, Inc.

All rights reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1980 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 13

NUMBER 1, MAY 1980

K. C. YOU AND K. S. FU. Distorted Shape Recognition Using Attributed Grammars and Error-Correcting Techniques 1

JAMES M. LESTER, JOHN F. BRENNER, AND WILLIAM D. SELLES. Local Transforms for Biomedical Image Analysis 17

HIROMICHI YAMAMOTO. Some Experiments on LANDSAT Pixel Classification Using Relaxation Operators 31

SURVEY

AZRIEL ROSENFELD. Picture Processing: 1979 46

NOTES

JOHN A. GREGORY AND PETER CHARROT. A C^1 Triangular Interpolation Patch for Computer-Aided Geometric Design 80

HANAN SAMET. Region Representation : Quadtrees from Binary Arrays .. 88

D. ROSEN. On the Areas and Boundaries of Quantized Objects 94

NUMBER 2, JUNE 1980

TIMOTHY P. WALLACE AND PAUL A. WINTZ. An Efficient Three-Dimensional Aircraft Recognition Algorithm Using Normalized Fourier Descriptors 99

CARLO BRACCINI AND GIUSEPPE MARINO. Fast Geometrical Manipulations of Digital Images 127

THEO PAVLIDIS. A Thinning Algorithm for Discrete Binary Images 142

ROBERT L. KIRBY. A Product Rule Relaxation Method 158

NUMBER 3, JULY 1980

ROBERT M. HARALICK. Using Perspective Transformations in Scene Analysis 191

YU-ICHI OHTA, TAKEO KANADE, AND TOSHIYUKI SAKAI. Color Information for Region Segmentation 222

ROBERT M. HARALICK, JOHN L. MOHAMMED, AND STEVEN W. ZUCKER. Compatibilities and the Fixed Points of Arithmetic Relaxation Process .. 242

RAMAKANT NEVATIA AND K. RAMESH BABU. Linear Feature Extraction and Description 257

NOTE

CHARLES R. DYER. Computing the Euler Number of an Image from Its Quadtree 270

ANNOUNCEMENT 277

NUMBER 4, AUGUST 1980

SURVEY

TAKEO KANADE. Region Segmentation: Signal vs Semantics 279

STEVEN M. RUBIN. Natural Scene Recognition Using Locus Search 298

M. A. FISCHLER AND P. BARRETT. An Iconic Transform for Sketch Completion and Shape Abstraction 334

SHI-KUO CHANG AND Y. W. WONG. L_n Norm Optimal Histogram Matching and Application to Similarity Retrieval 361

VIJAY VAISHNAVI AND DERICK WOOD. Data Structures for the Rectangle Containment and Enclosure Problems 372

AUTHOR INDEX FOR VOLUME 13 385